REMARKS

Sequences

The appropriate nucleotide and amino acid sequence identifiers (SEQ ID NO:) have been added to the claims and Page 11 of specification.

Formal Drawing

The formal drawings are enclosed.

Rejection under §101

The claims have been amended as suggested to recite that the polypeptide and nucleic acid are "isolated." Support for the amendment can be found throughout the specification, e.g., Page 5, lines 23-25; Page 7, line 10; Page 11, line 34.

Rejections under §112, second paragraph

The amendments herein do not change the scope of the claims, but merely clarify them in response to the issues raised in the Office action. However, such clarifications were completely unnecessary since the claims were already in conformance with the statutory requirements of §112, second paragraph.

The claims have been amended by replacing the term "biological activity" with "enzyme activity." It would have been understood from the claims, when read in light of the specification, that the claimed activity was enzymatic in nature.

The phrase "high specificity for phosphohistidine" has been replaced with "specifically dephosphorylates phosphohistidine." Support for this amendment can be found throughout the specification, e.g., Page 3, line 19; Page 4, lines 2-4; Page 8, lines 14-25; and Page 9, lines 9-25. Table 1 on Page 4 shows that the claimed enzyme dephosphorylates a phosphorylated histidine

present in a polypeptide, but not other phosphorylated substrates. γ^{32}-His-cheA (Table 1) is a substrate for histidine protein phosphatases. It belongs to a bacterial family involved in chemotaxis and contains phosphorylated histidine residues (Page 2, lines 10-19) that serve as a substrate in the dephosphorylation assay (Pages 8-9) for histidine protein phosphatases.

The recitation of "13.000 -15.000" would have been understand – as indicated in the Office action – as being in Dalton units. The claim has been amended to expressly recite these units (although, it is noted that the term "Daltons" is not explicitly recited in the specification). The molecular weight can be determined by SDS electrophoresis or mass analysis. See, Specification, e.g., Page 10, lines 4-10.

Rejection under 112, first paragraph

The specification provides clear enablement and description for histidine protein phosphatases. On page 7 of the specification, methods for purifying mammalian histidine protein phosphatases are disclosed. Although the methods are applied to rabbit, there is no evidence that these methods would not work in other species. As shown throughtout the specification and summarized in the attached Exhibit 1, histidine protein phosphatases exhibit high sequence identity, share the same activity, and have similar molecular weights. Taken together, it would be expected that such proteins would have similar molecular properties, and would behave similarly in the purification scheme described in the application.

According to M.P.E.P. 2164.04: "In order to make a rejection, the examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention. In re Wright, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993) (examiner must provide a reasonable explanation as to why the scope of protection provided by a claim is not adequately enabled by the disclosure). A specification disclosure which contains a teaching of the manner and process of making and using an invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as being in

compliance with the enablement requirement of 35 U.S.C. 112, first paragraph, unless there is a reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support."

Moreover, in addition to the purification methods described in the specification on pages 7-8, histidine protein phosphatases can be produced recombinantly, e.g., using nucleotide sequences which correspond to the disclosed protein sequences. Purification can also be accomplished using antibodies to the proteins, including antibodies that recognize conserved regions of it. See, e.g., Exhibit 1 and Specification, Page 13, (F).

Given that applicant has disclosed the sequence and purification of at least a rabbit histidine protein phosphatase, and the sequence of at least three (human, rat, and mouse) other highly related members of the same class, there is no reason to doubt that specification provides sufficient guidance for these others to be obtained in a purified form. There is no reasonable basis to allege otherwise.

As far as human histidine protein phosphatases (e.g., Claim 13), since the application has been filed, additional alleles have been identified. See, e.g., Exhibit 2 ("AL136644"). The specification provides sufficient guidance for selecting and isolating human histidine protein phosphatases, including the sequences disclosed in the specification, AL13336644, and other naturally-occurring alleles. See, e.g., Specification, Page 11, line 30-Page 12, line 2; Page 13, lines 1-11. For this reason, the rejection should be withdrawn at least with respect to these.

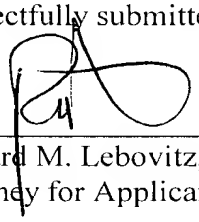
Rejection under 102(b)

Claim 8 has been canceled, rendering the rejection of it moot. Claim 9 has been amended to be dependent on method claim 19. These method claims are not anticipated or suggested by Hillier et al., e.g., because this reference does not disclose or suggest that the fragment contains a coding region, let alone that it codes for a human histidine protein phosphatases. Support for the claims can be found throughout the specification, e.g., Page 1, lines 4-6; Page 5, line 5; and Page 13, lines 4-7.

In view of the above remarks, favorable reconsideration is courteously requested. If there are any remaining issues which could be expedited by a telephone conference, the Examiner is courteously invited to telephone counsel at the number indicated below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,



Richard M. Lebovitz, Reg. No. 37,067
Attorney for Applicant(s)

MILLEN, WHITE, ZELANO
& BRANIGAN, P.C.
Arlington Courthouse Plaza 1, Suite 1400
2200 Clarendon Boulevard
Arlington, Virginia 22201
Telephone: (703) 243-6333
Facsimile: (703) 243-6410

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